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Mineral Industry Surveys

For information, contact:
James F. Carlin Jr., Acting Bismuth Commodity Specialist
U.S. Geological Survey
989 National Center
Reston, VA 20192
Telephone: (703) 648-4985, Fax: (703) 648-7757
E-mail: jcarlin@usgs.gov

Carolyn Crews (Data)
Telephone: (703) 648-7949
Fax: (703) 648-7975
E-mail: ccrews@usgs.gov

Internet: http://minerals.usgs.gov/minerals

BISMUTH IN THE SECOND QUARTER 2005

Bismuth consumption in the United States for the second quarter of 2005 was 588 metric tons (t), which was a slight decrease compared with first quarter 2005 consumption, according to estimates compiled by the U.S. Geological Survey. Estimated stocks at the end of the second quarter were slightly higher than those held at the end of the first quarter of 2005 (table 1). The consumption breakdown for bismuth in the second quarter of 2005 was 46% for metallurgical additives and galvanizing; 29% for fusible alloys, solders, and ammunition; 25% for chemical and pharmaceutical uses; and less than 1% for research and other miscellaneous uses (table 2).

The New York dealer price range for bismuth, as published in Platts Metals Week, remained in a narrow range throughout the second quarter, finishing the quarter at $3.45 to $3.65 per pound. The price range at the end of the second quarter was lower than that for the second quarter of 2004, when the price ended the quarter at $3.60 to $3.95 per pound.

According to China's leading bismuth producer, Hunan Shizhuyuan Nonferrous Metals Co., lower production in China because of a lack of raw materials, coupled with recent increases in worldwide demand, will create a tight supply for bismuth. They noted that during the first half of 2005, several small producers in Chenzhou were producing at half their capacity or closed down as they were unable to obtain bismuth raw materials. Hunan Shizhuyuan stated that its bismuth output would decline to 500 to 600 t in 2005 from 670 t in 2004, partly owing to power shortages in the early part of the year and partly owing to a decline in bismuth content in its ores (Metal Bulletin, 2005).

Fortune Minerals Ltd. (London, Ontario, Canada) announced that it had entered an agreement to sell all of its bismuth production from the NICO cobalt-gold-bismuth deposit in the Northwest Territories to an undisclosed private company that is "one of the world's largest and most diversified producers and suppliers of bismuth-based products with production facilities in North America and Europe." Commercial terms of the sales arrangement were not disclosed. The NICO deposit is located 160 kilometers (km) northwest of Yellowknife. A project feasibility study was being conducted by Micon International Ltd. and Met-Chem Canada Ltd. based on a production rate of 3,000 metric tons per day of ore (1 million metric tons per year) sourced initially from underground mining, and with open pits phased in during subsequent years. Ores would be processed in a plant constructed at the site to produce cobalt carbonate or metal, bismuth concentrate, and gold doré. Annual production was projected to be between 1,200 and 1,500 t of contained cobalt, 50,000 t and 100,000 ounces of gold, and 1,000 t and 1,500 t of contained bismuth, depending on ore grades within the deposit (Fortune Minerals Ltd., 2005).

Tiberon Minerals Ltd. (Toronto, Ontario, Canada) announced that during the first 6 months of 2005 it spent $2.7 million on development of its Nui Phao project in Vietnam, compared with $1.8 million during the same period in 2004. The increase in development and exploration expenditures was due to the advanced stage of the project and the completion of the Final Feasibility Study. Tiberon's primary interest in the Nui Phao property is tungsten and fluorspar, but there are also promising quantities of bismuth. The latest study concluded that open-pit mining could produce 76,000 t of tungsten trioxide, 3.5 million metric tons of acid-grade fluorspar concentrate, and 32,000 t of bismuth, over a 16-year mine life. Tiberon holds a 78% interest in the Nui Phao project. Tiberon and its two Vietnamese partners, Thai Nguyen Mineral Co. (15% interest) and Export-Import Investment Company Thai Nguyen or "Intraco" (8% interest), formed the Nui Phao Mining Joint Venture Co. Ltd. to develop and operate the mine (Tiberon Minerals Ltd., 2005).

In the first one half of 2005, China remained the world's dominant bismuth producer, and Chinese bismuth exports decreased by 11% compared with exports in the first one half of 2004. Belgium was the leading export market for China, followed by the United Kingdom, Mexico, Japan, and the United States (Metal-Pages, 2005§[1]).

[1]A reference that includes a section mark (§) is found in the Internet Reference Cited section.

References Cited

Fortune Minerals Ltd., 2005, Fortune Minerals announces bismuth off take letter of intent: London, Ontario, Canada, Fortune Minerals Ltd., press release, May 19, 1 p.

Metal Bulletin, 2005, It's time for $5 bismuth: Metal Bulletin, no. 8902, July 18, p. 18.

Tiberon Minerals Ltd., 2005, Nui Phao overview: Toronto, Ontario, Canada, Tiberon Minerals Ltd., press release, May 19, 1 p.

Internet Reference Cited

Metal-Pages, 2005 (August 8), China bismuth exports drop in H1, accessed August 8, 2005, via URL http://www.metal-pages.com.

TABLE 1
SALIENT BISMUTH STATISTICS[1]

(Kilograms unless otherwise specified)

		2005	
	2004[p]	First quarter	Second quarter
Consumption[e]	2,420,000	595,000	588,000
Exports[2]	109,000	22,000	32,000 [3]
Imports for consumption	1,980,000	720,000	356,000 [3]
Price per pound, dealer, end of period	$3.35	$3.55	$3.52
Stocks, end of period, consumer	134,000	132,000	134,000

[e]Estimated. [p]Preliminary.

[1]Data are rounded to no more than three significant digits.

[2]Comprises bismuth metal and the bismuth content of alloys and waste and scrap.

[3]Includes April and May; June data were not available at time of publication.

TABLE 2
ESTIMATED BISMUTH METAL CONSUMED
IN THE UNITED STATES, BY USE[1]

(Kilograms)

		2005	
Use	2004[p]	First quarter	Second quarter
Chemicals[2]	584,000	146,000	146,000
Bismuth alloys	703,000	175,000	168,000
Metallurgical additives	1,110,000	271,000	270,000
Other	21,200	3,130	3,840
Total	2,420,000	595,000	588,000

[p]Preliminary.

[1]Data are rounded to no more than three significant digits, may not add to totals shown.

[2]Includes industrial and laboratory chemicals, cosmetics, and pharmaceuticals.

TABLE 3

U.S. EXPORTS OF BISMUTH METAL, ALLOYS AND WASTE AND SCRAP, BY COUNTRY[1]

(Kilograms, metal content)

		2005				
Country	2004	March	First quarter	April	May	January - May
Belgium	2,720	--	--	63	--	63
Brazil	1,140	189	189	--	--	189
Canada	46,000	2,460	12,900	680	13,000	26,600
China	99	--	--	--	4	4
Dominica	53	--	--	--	--	--
Dominican Republic	11,100	88	255	1,720	124	2,100
France	--	--	--	5,100	5,000	10,100
Germany	1	--	--	--	--	--
Guatemala	229	--	--	--	--	--
Hong Kong	360	45	45	--	84	129
India	--	--	--	2,000	--	2,000
Ireland	--	--	309	--	--	309
Italy	113	--	--	--	--	--
Japan	5,320	2,100	2,100	--	--	2,100
Korea, Republic of	75	--	--	--	--	--
Malaysia	--	--	--	--	11	11
Mexico	28,500	272	4,430	4,110	--	8,540
Russia	2,090	--	--	--	--	--
Singapore	59	--	--	--	75	98
South Africa	--	--	--	23	--	1,000
Spain	--	--	1,000	--	29	29
United Kingdom	10,700	728	728	5	--	733
Total	109,000	5,890	22,000	13,700	18,300	54,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4

U.S. IMPORTS FOR CONSUMPTION OF BISMUTH METAL, BY COUNTRY[1]

(Kilograms)

		2005				
Country	2004	March	First quarter	April	May	January - May
Bahamas, The	1,910	--	--	723	--	723
Belgium	793,000	153,000	353,000	89,700	67,800	511,000
Canada	8,760	--	3,350	--	1,390	4,740
China	169,000	80,000	198,000	--	61,400	259,000
Germany	162,000	73	73	107	--	180
Hong Kong	77,100	--	--	--	--	--
Mexico	495,000	40,000	120,000	20,000	40,000	180,000
Netherlands	232	--	--	4	--	4
Peru	39,800	--	--	--	--	--
Russia	52	--	--	--	--	--
Spain	500	300	300	--	--	300
United Kingdom	237,000	14,500	46,000	50,000	25,200	121,000
Total	1,980,000	288,000	720,000	161,000	196,000	1,080,000

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.